

ART. IV.—*A New Process of Purifying Water discovered
by M. Birkmyre.*

BY MR. C. R. BLACKETT.

[Read May 13th, 1880.]

ART. V.—*The Tay Bridge.*

BY W. C. KERNOT, M.A.

[Read July 8th, 1880.]

THE object of the present paper is to give a brief account of a structure which, from its size and the nature of its construction, is one of the most remarkable in existence, and of a disaster, the consequences of which, in respect to loss of life and destruction of property, are probably without parallel in the history of railway engineering.

The Tay Bridge crosses the Firth of Tay at Dundee, and is a portion of the direct line of railway connecting that city with the more southern parts of Great Britain. The Firth itself is an arm of the North Sea, about 25 miles long, and at the bridge nearly 2 miles in width; the site being some 10 or 12 miles inland.

The bridge, which carries a single line of railway of 4-foot 8½-inch gauge, is straight for a length of considerably more than a mile, the ends being curved, the northern extremity contiguous to the town of Dundee forming a quadrant in plan. The straight portion lies very nearly north and south.

The exact length of the structure, as given in the *Engineer* of the 2nd January last, is 3450 yards, or 70 yards less than 2 miles, and is divided into 85 spans, or openings, varying from 29 to 245 feet. The piers numbered 1 to 14, counting from the southern end, are entirely of brick, the remainder being, with a few unimportant exceptions, open frames, consisting of a group of cast-iron columns connected together by wrought-iron bracing.

The girders are of wrought-iron, with, in most cases, parallel top and bottom members, and a double triangulation between at an angle of 45° with the horizontal.

For the greater part of the length the rails are supported